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AUTHOR Klinzing, Hans Gerhard; And Others
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ABSTRACT

A program was designed for training secondary school trainee teachers in expressive nonverbal behavior and for assessing the effect of various combinations of different training elements. The program was developed on the basis of nonverbal descriptors of "enthusiastic teaching": vocal delivery, eyes, facial expression, gestures, and eye contact and body movement were included. Four studies (main field tests) were conducted to obtain information on the relative effectiveness of various combinations of the training elements. Participants in the studies were secondary school student teachers. The PONS-test (Profile of Nonverbal Sensitivity) was administered as a pre- and post-test for the studies. Results of the four studies provided consistently positive evidence about the trainability of nonverbal sensitivity. A description is given of the four training courses and their elements, and tables illustrate the design of the four studies and the characteristics of the participating students. Results of the tests are summarized on tables. (JD)

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EFFECTS OF A TRAINING PROGRAM ON EXPRESSIVE NON-VERBAL BEHAVIOR

Hans Gerhard Klinzing

Thilo Fitzner

Gisela Klinzing-Eurich

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Hans Gerhard Klinzing , Thilo Fitzner , Gisela Klinzing-Eurich

Effects of a Training Program on Expressive Non-Verbal Behavior

1.) Theoretical Framework

The importance of non-verbal communication in teaching has been recognized over the past fifteen years (H.A.Smith, 1979). Non-verbal communication in educational settings is commonly considered as a significant component of the variable "teacher enthusiasm" (Rosenshine 1970) which in turn is found to be related with pupil attention, interest, attitudes, and achievement. Most of the correlational studies (1) and most of the experimental studies (2) which include the variable "enthusiasm" or similar variables supported the significance of an animated, expressive, stimulating, enthusiastic, energetic, dynamic teacher behavior.

Teacher training programs on non-verbal behavior were developed in a variety of formats, implemented in teacher training systems, and evaluated. When looking at these evaluations, the results are not as convincing as the ones obtained for the relationships between expressive non-verbal behavior or teacher enthusiasm and student outcome. While Cooper/Stroud (1967), Collins (1978), Langthaler/Wodtke (1979), Bettencourt (1979), Gillett/Gall (1980), Borg (1975), and Shum report positive significant effects of training programs, Hodge (1973), Raymond (1973), and Brusling (1974) report limited success. Berliner (1969) as well as Pancrazio and Johnson (1970) did not find any effect of the training and Becker (1973) even reports significantly negative effects of the training.

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(1) Process-product studies with significantly positive results:
Solomon et al., 1964; McCoard, 1944; Kleinmann, 1964; Evertson et al., 1978; Fortune, 1967; Armento, 1977; Wallen and Wodtke, 1963; Wallen, 1966; McConnell, 1977; Rosenshine, 1971; Conners and Eisenberg, 1966.

Process-product studies with inconsistent results or showing no significant results:
Unruh, 1971; Brophy and Evertson, 1974; Borg, 1975;

Process-process studies with positive significant results:
Ryans, 1960; Solomon, 1965; Müller-Wolf and Fittkau, 1971.

(2) Woolbert, 1920; Jersild, 1928; Ehrensberger, 1945; Coats and Schmidchens, 1966; Ware and Williams, 1975; Williams and Ware, 1977; Mastin, 1963; Land, 1960; Ahlbrand, 1976; Gillett and Gall, 1980; Gauger, 1951.

Experimental studies with mixed or non-significant results:
Wyckoff, 1973; Williams and Ware, 1976; Bettencourt, 1979.

These results in conjunction with results of comparable studies in the field of teacher training suggest that the differences in effectiveness seem to be due to the kind and number of training components or elements employed in a program. Joyce and Showers (1981), for example, showed in their research review that teacher training methods (programs) are most effective when they contain the following six training elements, or at least the combination of four of them: theory presentation, demonstration of the behavior desired, discrimination training, practice in a simulated or scaled-down situation, as well as structured and open-ended feedback, and coaching. A series of six replicated studies on a training program based on Flanders' (1970) concept of teacher indirectness that assessed the effects of theory presentation plus discrimination training as compared to theory presentation plus discrimination training plus practice in a microteaching format with feedback revealed the same trend (Klinzing and Klinzing-Eurich, 1981; Klinzing, 1982).

A training program was designed for training the expressive non-verbal behavior of secondary school trainee teachers and to assess the effect of various combinations of different training elements
This program was developed on the basis of some of Collins' (1978) non-verbal descriptors of "enthusiastic teaching": vocal delivery, eyes, facial expression, gestures, and extended by the inclusion of eye contact and body movement.
This program was evaluated in a preliminary field test. Then four studies (main field tests) were conducted to obtain information on the relative effectiveness of various combinations of the training elements mentioned.

2.) Preliminary Field Test

According to the research and development cycle developed at the Far West Laboratory for Educational Research and Development in San Francisco (Borg et al., 1970) a preliminary version of the course on expressive non-verbal behavior was tried out in a preliminary field test with 11 university students (3 female, 8 male. Average number of years studied: $\bar{x}=3.4$).
The results as assessed by participant observers who functioned as supervisors in the course as well as by independent observers who evaluated the pre to post gains from the aspect of the descriptors for non-verbal behavior were predominantly encouraging. Significant gains ($p \leq 0.05$) were obtained in all

the dimensions of expressive non-verbal behavior. These gains were maintained over a one-month period. Positive reactions of the participants to the course as a whole and its various elements supported these findings. In some areas changes turned out to be necessary, though. This revision of the course emphasized extended discrimination training.

3.) The Four Studies

This revised version of the course was evaluated in four studies. The specific research questions set up for these studies were:

a) Does the training program of expressive non-verbal behavior lead
   - to an increase in non-verbal sensitivity and
   - to an increase in the use of expressive non-verbal behavior?

   Can this increased use of expressive non-verbal behavior be maintained over a two- or three-month period?

b) How do the trainees evaluate the training program and its elements?

c) For the purpose of a "pay-off" evaluation the following question was asked:

   Does the increase in the level of expressive non-verbal behavior, if any, result also in an increase in the attention and interest on the part of the audience/peers ?

d) Beyond this specific evaluation of the training, questions of a more general interest were set up:

   What combination of training elements will be more effective:
   - theory presentation only
   - discrimination training only
   - theory presentation plus discrimination training plus practice in a scaled-down situation (microteaching) with feedback?

Description of the Course and its Elements

Three of the courses (studies 1, 2, and 3) were conducted as a four- to ten-day workshop, 6 - 8 hours daily. Study 4 was conducted more in a traditional format as a two-hour semester course over three months.

The treatment consisted of a combination of the following elements:

- Theory presentation a:
  General introduction to non-verbal communication and the course objectives. This was given to all participants in both studies before the pre-tests.

- Theory presentation b:
  Six lectures, 30 minutes each, on the following dimensions of non-verbal behavior and its expressive use: vocal delivery, eyes and eye contact, facial expression, gestures, and body movement. The lectures were supplemented by handouts (summary of the lectures), small group discussions (30 minutes each), and preliminary exercises (games) to make the content more concrete and to promote its retention.

- Discrimination training:
  Introduction to descriptors of expressive non-verbal behavior (videotape). Then the participants observed videotapes that showed non-verbal events cued by an instructor and rated six videotapes according to the descriptors of non-verbal behaviors mentioned above (approximately 2 1/2 hours in studies 2 and 3, and 50 minutes in study 4).

- Practice and feedback:
  Five microteaches (peerteaching, 10 to 15 min. each) with feedback based on television recordings, ratings by the Microteaching peer group, and short evaluation discussions in the same group.

The training elements were the same or similar in all of the four studies but were combined in different ways:
Study 1 was to assess the effects of mere theory presentation.
Study 2 contained all the elements described above. For assessing the effect merely of discrimination training one-half of the group (randomly assigned) received discrimination training before the pre test, the other half after the pre test (post test only - control group design).

Then the course continued with the remaining elements (theory presentation b, practice, and feedback). Two months after the post test a retention test was conducted under the same conditions.

Study 3 is a replication of the study that was done with the experimental group in study 2: the participants went through the discrimination training prior to the pre test. Three months after the post test a retention test was conducted. During this three-month period the participants were reinforced to focus on a different aspect of non-verbal behavior every week (self-coaching).

As mentioned above, study 4 was conducted in a different format. The training was distributed over a three-month period (14 weeks) in 90-minute sessions every week. All components were shortened. No Microteaching exercises were provided.

Table 1 summarizes the four course designs.

As illustrated in table 1, the participants were given discrimination training prior to the pre tests in study 3 and the experimental group of study 2. This was done so that knowledge of results on the pre tests could be used by the participants to provide feedback to their peers.

The Participants of the Studies

The participants of the studies were university students (secondary student teachers) from different subject areas volunteering in the studies.

Table 2 gives a synopsis of the average number of years the students studied at the university and their major.

TABLE 1 : Design of the Four Studies on the Training of Expressive Nonverbal Behavior

STUDY 1 (n = 21) (duration: 4 days)	STUDY 2 (n = 23) (duration: 10 days)		STUDY 3 (n = 12) (duration: 10 days)	STUDY 4 (n = 25) (duration: 14 sessions of of 90 min. each)
theory presentation a	theory presentation a		theory presentation a	theory presentation a
PONS (1)	*PONS (1)*		*PONS (1)*	*PONS (1)*
	exp. group	control group		
——	discr. training (2 1/2 hrs.) (n = 13)	—— (n = 10)	discrimination training (2 1/2 hrs.)	——
(behavioral) PRE TEST	(behavioral) PRE TEST	(behavioral) PRE TEST	(behavioral) PRE TEST	(behavioral) PRE TEST
	——	discr. training		
theory presentation b (without preliminary exercises)	theory presentation b 5 practice sessions with feedback (peerteaching) (10 min. each)		theory presentation b 5 practice sessions with feedback (peerteaching) (10 min. each)	theory presentation b shortened discrimination training (50 min.)
(behavioral) POST TEST 1	(behavioral) POST TEST 1		(behavioral) POST TEST 1	(behavioral) POST TEST 1
PONS (1)	*PONS (1)*		*PONS (1)*	*PONS (1)*
——	(behavioral) POST TEST 2 after 2 months		(behavioral) POST TEST 2 after 3 months	——

(1) Profile of Nonverbal Sensitivity

TABLE 2: Characteristics of the Participating University Students

	Study 1	Study 2			Study 3	Study 4
		total	experim. group	control group		
Sample size	21	23	13	10	12	25
Sex	12 female 9 male	10 female 13 male	5 female 8 male	5 female 5 male	3 female 9 male	12 female 13 male
Number of years studied ($\bar{x}$)	3.5 years of study	2.7 years of study	2.8 years of study	3 years of study	3.4 years of study	4.1 years of study
Subject Matter Areas studied by the students:						
Philological Subjects in Conjunction with German and English Philology, and History or Theology etc.	10	12	7	5	5	15
Natural Sciences	1	1	1	0	0	6
Combination of Natural Sciences and Philosophy	2	0	0	0	2	1
Economy in Conjunction with Natural Sciences, Mathematics or Philology	6	9	5	4	2	0
Sports with Philology or Natural Sciences	2	1	0	1	3	3

The difference in numbers in the experimental and the control group in study 2 and the difference in numbers between post test 1 and 2 results from a (non-systematic) drop-out (sickness and organizational problems of some participants).

Data Collection:

a) For studies 2, 3 and 4 a test of non-verbal sensitivity was administered. The PONS-test (Profile of Nonverbal Sensitivity) developed by Rosenthal and associates (Rosenthal, 1979) emphasizes non-verbal cues conveyed by face, body, figure, randomized spliced voice, and content-filtered voice. This instrument utilizes a 45-minute black and white film consisting of 220 two-second auditory and/or visual segments. The participants are provided with answer sheets containing alternative pairs of descriptions for each of the 220 segments. After viewing each segment the participants mark the description that they consider appropriate to characterize the respective non-verbal cue. This instrument has been used successfully for evaluating teacher training (Hansford, 1977).

b) Prior to and after the training, and in addition for studies 2 and 3 two or three months later, respectively, the participants conducted a 10-15 minute microteach in a group of 5 - 7 peers with a self-selected topic (see table 1). For the first part of the test the participants were to introduce the topic in a lecture-type presentation, in the second part (5 - 7 min.) they were to discuss it with their groups.

Three independent trained observers rated each videotape in a random order, without knowing which tape belonged to which course or test. This was done in two phases. In phase 1 the videotapes of studies 2 and 4 were rated, in phase 2 the tapes of studies 1 and 3. The observers utilized five-point rating scales based on the descriptors of expressive non-verbal behavior: vocal delivery, eyes and eye contact, facial expression, gestures, body movement. Furthermore, also on five-point scales, as global ratings they assessed the overall level of activity, warmth, and assurance of the trainees.
The interrater reliability was determined by comparing the observer ratings with a criterion (expert) rater and by comparing the observers with each other. To ensure that the observers maintained their observation skills throughout the evaluation, a maintenance test at the end of each study was conducted.

Table 3 gives the observer agreement with an expert rater, the agreement among the observers, and the observer stability over time.

Also on a five-point scale the observers rated the interest and attention as stimulated by the participants' presentation.

Table 4 gives the observer agreement with an expert rater and with each other, and the observer stability.

The mean scores of the three observers for each participant and test served as the basis for the statistical analysis (t-test).

c) At the end of the training each participant responded to a questionnaire on the course and its elements (except for study 1).

TABLE 3: Observer Agreement with an Expert Rater, Agreement of Observers, and Observer Stability Over Time.

Product-Moment Correlations

	Agreement with an Expert Observer (based on 6 videotapes, 10 min. each)*		Agreement of observers with each other (based on 6 videotapes, 10 min. each)**		Maintenance test (observer stability) (based on 11 or 10 videotapes, respectively, 10 min.each)**	
Ratings on non-verbal behavior						
Variables	Study 2 and Study 4	Study 1 and Study 3	Study 2 and Study 4	Study 1 and Study 3	Study 2 and Study 4	Study 1 and Study 3
vocal delivery	.99	.94	.83	.74	.90	.98
eyes	.98	.97	.90	.84	.94	.86
eye contact	.94	.99	.91	.90	.97	.96
facial expressions	.99	.98	.96	.90	.97	.89
gestures	.97	.99	.91	.94	.99	.95
body movement	.98	.98	.91	.89	.95	.98
Overall Ratings						
activity	.99	.99	.83	.92	.94	.91
warmth	.97	.97	.82	.76	.91	.93
assurance	.98	.96	.86	.91	.93	.96

*) Each of the three observer ratings was correlated with an expert's rating. These three correlations were converted to Fisher's z , averaged, and, then, reconverted to a Pearson correlation.

**) Each of three observer ratings were correlated with each other. These correlations were converted to Fisher's z , averaged, and, then, reconverted to a Pearson correlation.

TABLE 4: Observer Agreement with an Expert Rater, Agreement of the Observers, and Observer Stability Over Time. Product-Moment Correlations*)

	Observer agreement with an expert		Observer agreement with each other		Observer stability	
Variables	Study 2 and Study 4	Study 1 and Study 3	Study 2 and Study 4	Study 1 and Study 3	Study 2 and Study 4	Study 1 and Study 3
interest	.98	.99	.94	.81	.94	.84
attention	.99	1.0	.92	.87	.95	.87

*) See p.10

4.) Results

a) Table 5 summarizes the results of the PONS-test for studies 2, 3, and 4.

TABLE 5: Results of the Pre- and Post-Tests for the PONS-Test in Studies 2, 3, and 4.

Means and t-Test Results.

Test	STUDY 2 $\bar{x}$ n=20	diff.	STUDY 3 $\bar{x}$ n=12	diff.	STUDY 4 $\bar{x}$ n=18	diff.
pre test	173.40		174.50		178.06	
post test	186.45	13.05^{xxx}	185.45	10.95^{xx}	184.93	6.87^{xx}

t-test:

xxx $p \leq 0.0005$ xx $p \leq 0.001$ (one-tail test)

The results as summarized in table 5 indicate a significant increase in non-verbal sensitivity in all three studies.

b) Table 6 summarizes the results of the pre-, post-, retention tests (post test 2) for changes in expressive non-verbal behaviors for studies 1, 2, 3, and 4.

TABLE 6: Results of the Pre-, Post- and Retention Tests (Post Test 2) for Changes in Expressive Nonverbal Behaviors for Studies 1, 2, 3, and 4
(Means and t-Test Results, and Effect-Sizes)

Var.	Test	STUDY 1 n=21 $\bar{x}$	p*	ES (SD)	STUDY 2 n=10 post test 2: n=9* contr. group $\bar{x}$	p*	ES (SD)	STUDY 2 n=13 post test 2: n=11* experim. group $\bar{x}$	p*	ES (SD)	exp.vs.contr. ES(SD)	exp.vs.contr. p*	STUDY 3 n=12 post test 2: n=9* $\bar{x}$	p*	ES (SD)	STUDY 4 n=25 $\bar{x}$	p*	ES (SD)
vocal delivery	pre test	2.73	0.0005	0.61	2.43	0.0005	1.89	3.10	-	0.58	1.03	0.01	2.53	0.005	0.85	2.37	0.001	0.84
	post test 1	3.13			3.66	0.05		3.41	0.005				3.00	0.005		2.86		
	post test 2	-			3.03			3.66					3.15			-		
eyes	pre test	2.56	-	0.17	1.83	0.0005	2.96	2.41	0.01	1.35	1.16	0.005	2.47	0.005	0.72	1.93	0.005	0.98
	post test 1	2.67			3.26	0.01		2.91	0.005	-			2.83	0.025		2.43		
	post test 2	-			2.37			3.12					2.93			-		
eye contact	pre test	2.83	0.025	0.38	2.49	0.0005	2.80	3.07	0.0005	1.55	0.89	0.025	2.81	0.005	1.78	2.44	0.0005	1.41
	post test 1	3.18			4.33	0.005		4.00	0.0005				3.86	0.005		3.34		
	post test 2	-			3.33			4.33					3.74			-		
facial expr.	pre test	1.91	-	-0.08	1.36	0.001	4.11	1.90	0.005	1.17	1.54	0.005	1.89	0.005	0.72	1.66	0.025	0.71
	post test 1	1.86			2.80	0.001		2.58	0.025				2.17	0.005		1.98		
	post test 2	-			2.04			2.75					2.22			-		
gestures	pre test	2.11	0.001	0.35	1.53	0.0005	3.86	2.77	0.01	1.13	2.48	0.001	1.89	0.01	1.69	1.53	0.005	1.25
	post test 1	2.35			3.46	0.01		3.47	0.05				2.70	0.025		2.22		
	post test 2	-			2.48			3.48					2.78			-		
body movement	pre test	2.38	-	0.18	1.56	0.0005	3.42	2.08	0.001	1.46	1.16	0.025	2.03	0.025	1.95	1.42	0.0005	2.07
	post test 1	2.57			3.10	0.01		3.00	0.005				2.75	0.01		1.98		
	post test 2	-			2.26			3.15					3.21			-		
overall ES	pretest / post test 1			0.27			3.16			1.21	1.83				1.29			1.21

ES = Effect-Size. Calculated for Studies 1, 2, 3, and 4: $ES = \frac{\bar{x}(\text{post test}) - \bar{x}(\text{pre test})}{SD(\text{pre test})}$

For the comparison of the experimental and control group in Study 2: $ES = \frac{\bar{x}(\text{experimental gr.}) - \bar{x}(\text{control gr.})}{SD(\text{control gr.})}$

one-tail test *: The unequal numbers in the groups are due to drop-outs.

As the results in table 6 indicate, in all four studies significant gains were obtained from pre- to post-test in the level of expressive non-verbal behavior for all six descriptors. This particularly holds for those studies where the participants received a training that contained the elements: theory presentation, discrimination training, and practice with structured and open feedback (studies 2 and 3). The results of the retention test after two months in study 2 show that the course gain could be maintained. In the retention of study 3 after three months the post course gain could even be slightly increased. The smallest gains were obtained in study 1 where the participants had only a presentation of theory and did not go through any training. The highest gains could be observed in the "control group" of study 2 where the participants after their pre tests went through all the training elements: presentation of theory, discrimination training, practice, and feedback (the overall ES for study 1 was 0.27 SD, and 3.16 SD for the control group of study 2). Study 3, a replication of the experimental group of study 2, supports these results. But because of the high impact of the extended discrimination training which was delivered before the pre test (2 1/2 hours), the participants of study 3, like the ones in the experimental group in study 2, started at a higher level of expressive non-verbal behavior. Therefore, they had a lower gain than, for instance, the control group in study 2.

In study 4 the training was conducted in a different format and it was shortened (not containing any practice nor feedback, and providing a shortened version of the discrimination component (50 min. only)). The results, though significant for all of the six descriptors, show a smaller gain in the level of expressive non-verbal behavior than most of the results in studies 2 and 3.

The same trend of results was found for the global ratings.

Table 7 summarizes the results for changes in the variables "activity", "warmth", and "assurance".

TABLE 7: Results of Global Ratings for Studies 1, 2, 3, and 4
(Means, t-Test Results and Effect-Sizes)

Var.	Test	STUDY 1			STUDY 2								STUDY 3			STUDY 4		
		n=21			n=10 post test 2: n=9*			n=13 post test 2: n=11*					n=12 post test 2: n=9*			n=25		
					contr. group			experim. group			exp.vs.contr.	exp.vs.contr.						
		$\bar{x}$	p≤	ES (SD)	$\bar{x}$	p≤	ES (SD)	$\bar{x}$	p≤	ES (SD)	ES(SD)	p≤	$\bar{x}$	p≤	ES (SD)	$\bar{x}$	p≤	ES (SD)
activity	pre test	2.46	-	0.32	2.16	0.0005	2.83	3.02	-	0.77	1.65	0.001	2.31	0.05	0.65	2.40	0.01	0.78
	post test 1	2.71			3.63			3.50					2.86	0.025		2.87		
	post test 2	-			3.03	0.05		3.51	0.05				3.15					
warmth	pre test	2.84	0.0005	0.60	2.53	0.005	1.98	3.00	0.025	0.70	0.87	0.05	2.81	0.025	0.90	2.77	0.05	0.39
	post test 1	3.21			3.60			3.44					3.28	0.025	-	3.01		
	post test 2	-			3.22	0.025		3.63	0.025				3.30					
assur-ance	pre test	2.64	0.0005	0.62	2.20	0.0005	2.83	3.15	0.005	0.98	1.98	0.001	2.53	-	0.47	2.48	0.025	0.69
	post test 1	3.11			3.56			3.75					2.86	-	-	2.94		
	post test 2	-			3.07	0.005		3.57	0.025				2.93					

ES = Effect-Size. Calculated for Studies 1, 2, 3, and 4: $ES = \frac{\bar{x}(\text{post test}) - \bar{x}(\text{pre test})}{SD(\text{pre test})}$

For the comparison of the experimental and control group in Study 2: $ES = \frac{\bar{x}(\text{experimental gr.}) - \bar{x}(\text{control gr.})}{SD(\text{control gr.})}$

one-tail test *: The unequal numbers in the groups are due to drop-outs.

As the results in table 7 indicate, for almost all global ratings significant gains from pre- to post-test can be observed. Again, greatest course gain was obtained in the control group of study 2.
The lower (but in most cases statistically significant) gains in studies 1 and 4 may be attributed to the leaving out or shortening of the training. The lower gains in study 2 (experimental group) and in study 3 may be explained by the fact that the participants started at a higher level of expressive non-verbal behavior because they received discrimination training before the pre test. Once again, the high impact of the component "discrimination training" can be observed (study 2).

As a pay-off evaluation also the interest and attention stimulated by the lectures and discussions were rated in the pre- and post-tests.

Table 8 summarizes the results for the variables "interest" and "attention".

The data as summarized in table 8 show the same trend as for the descriptors of non-verbal behavior and for the global ratings. In all four studies there is an increase in interest and attention, the results in most cases reaching the level of significance. Again, the greatest couse gain was obtained in the control group of study 2 which received all of the training components after the pre test. Therefore it started with lower pre test data and had a better chance for substantial course gains. Especially the discrimination component turned out to be very effective again, as can be seen from the higher pre test data in the experimental group of study 2 that had received prior discrimination training (not so in study 3). Again, the lower effect in studies 1 and 4 may be attributed to the higher pre test data of the participants.

TABLE # : Results of the Pre-, Post-, and Retention Tests for Changes in the Variables "Interest" and "Attention" for Studies 1, 2, 3, and 4.
(Means and t-Test Results, and Effect-Sizes)

Var.	Test	STUDY 1			STUDY 2								STUDY 3			STUDY 4		
		n=21			n=10 post test 2: n=9[b]			n=13 post test 2: n=11[b]					n=12 post test 2: n=9[b]			n=25		
					contr. group			experim. group			exp.vs.contr.	exp.vs.contr.						
		$\bar{x}$	p^a	ES (SD)	$\bar{x}$	p^a	ES (SD)	$\bar{x}$	p^a	ES (SD)	ES(SD)	p^a	$\bar{x}$	p^a	ES (SD)	$\bar{x}$	p^a	ES (SD)
Interest	pre test	2.54	0.025	0.40	2.00	0.0005	2.33	3.00	-	0.53	0.005	1.49	2.36	-	0.46	2.80	-	0.38
	post test 1	2.79			3.53			3.39					2.70	0.01		2.98		
	post test 2	-			3.03	0.005		3.66	0.05				3.15			-		
Attention	pre test	2.46	-	0.28	1.90	0.0005	2.85	3.20	-	0.73	0.001	2.10	2.44	-	0.28	2.70	0.05	0.65
	post test 1	2.67			3.67			3.61					2.72	0.025		3.12		
	post test 2	-			3.07	0.001		4.00	0.005				3.15			-		

ES = Effect-Size. Calculated for Studies 1, 2, 3, and 4: $ES = \frac{\bar{x}(\text{post test}) - \bar{x}(\text{pre test})}{SD(\text{pre test})}$

For the comparison of the experimental and control group in Study 2: $ES = \frac{\bar{x}(\text{experimental gr.}) - \bar{x}(\text{control gr.})}{SD(\text{control gr.})}$

[a]: one-tail test [b]: The unequal numbers in the groups are due to drop-outs

At the end of the training courses and after the retention tests in studies 2, 3,and 4 a questionnaire was to assess the participants' attitudes towards the course and its elements (five-point scales). A brief summary of the results is given below (detailled questionnaire data can be obtained from the first author).
The participants' opinion of the courses and their particular elements was very positive. For example, all participants of the three courses (studies 2, 3, and 4) stated that, if asked, they would recommend the course to their colleagues. Except for four, they rated the course better than other university courses, and (except for three) evaluated it as being positive, worthwhile, and interesting. Also, all of the course elements were rated positively. Approximately three-quaters of the participants expressed the opinion that the course had helped them to improve their skills of non-verbal communication.

With respect to the differential effectiveness of particular combinations of the training elements tables 6, 7, and 8 reveal the following trends: Mere presentation of the theoretical information of the course was least effective (study 1). Presentation of theory (including preliminary exercises) plus a shortened version of discrimination training (50 minutes, study 4) as well as an extended discrimination training alone (2 1/2 hours in the pre test of the experimental group, study 2) turned out to be more effective. But best results could be obtained where all training elements were involved (studies 2 and 3). The effect was more visible where the participants had their discrimination training after the pre tests (control group of study 2) and not as strong in the groups where discrimination training was provided prior to the pre tests since this resulted in higher pre test data for the level of nonverbal behavior.

5.) Summary / Conclusions

The results of the four studies provide consistently positive evidence about the trainibility of non-verbal sensitivity. Even though repeated testings with the PONS test by itself tend to increase the non-verbal sensitivity (Rosenthal et al. 1979), the assumption can be made that the

training of non-verbal behavior leads to a further increase in non-verbal sensitivity. This assumption we found corroberated by our most recent study on the training of non-verbal behavior. The increase in the experimental group was about 30% higher than in the control group that did not have any training.

Also, the data provide strong support for the hypothesis that it is possible to train university students in increasing their level of expressive non-verbal behavior. This holds particularly for those courses that contain all of the following training components (Joyce and Showers, 1981; Klinzing, 1982): presentation of theory, discrimination training, practice in a simulated or scaled-down situation, and feedback. The courses were more effective the more training components were involved in the treatment.
This success corresponds with the global ratings of the participants' activity, warmth, and assurance during the tests, as well as of the attention and interest stimulated by their behavior. These measures at the same time allowed to obtain an indicator for the appropriateness and effect of the non-verbal behavior on the audience.

In addition, the participants acknowledged the significance of expressive non-verbal behavior for communication, and they accepted the training procedures as reasonable and motivating for increasing their level of expressive non-verbal behavior.
These courses did not -and should not- aim at context-free training of non-verbal cues. They rather aim at enhancing the participants' repertory of non-verbal behavior in order to promote their expressivity and their flexibility in coping with a variety of different situations, to promote their ability to structure their verbal information for the audience, and their ability to convey informations and feelings effectively and unambiguously.

Beyond the measures mentioned above these studies do not assess in detail the appropriateness of a particular non-verbal behavior for a given content and context. More attention is to be given to developing a model and instruments for assessing and evaluating these very important aspects of human communication

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